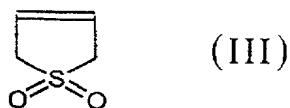
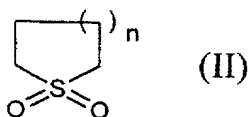


Parameter	Value	Unit
Initial concentration of H_2O_2	0.01	M
Initial concentration of Fe^{2+}	0.001	M
Initial concentration of H^+	0.1	M
Temperature	25	$^{\circ}\text{C}$
Reaction time	0-100	min
Reaction rate	0.001	M/min
Reaction order	1	
Reaction mechanism	Free radical chain reaction	
Reaction products	Fe^{3+} , H_2O , O_2	
Reaction conditions	Dark, sealed	
Reaction medium	Aqueous	
Reaction vessel	100 mL beaker	
Reaction setup	Stirrer, thermometer	
Reaction safety	Wear gloves, goggles	
Reaction disposal	Neutralize with NaOH	
Reaction storage	Store in dark	
Reaction maintenance	Check pH regularly	
Reaction troubleshooting	Check reagent purity	
Reaction optimization	Adjust Fe^{2+} concentration	
Reaction validation	Compare with literature	
Reaction conclusion	Reaction is first order	
Reaction summary	Reaction is exothermic	
Reaction notes	Reaction is reversible	
Reaction references	See literature	
Reaction acknowledgments	Thanks to Dr. Smith	
Reaction contact	Dr. Jones	
Reaction address	123 Main St	
Reaction phone	555-1234	
Reaction fax	555-5678	
Reaction email	john.doe@university.edu	
Reaction website	www.university.edu	
Reaction social media	Facebook, Twitter	
Reaction privacy policy	See website	
Reaction terms of service	See website	
Reaction disclaimer	Not for medical use	
Reaction warranty	1 year	
Reaction return policy	30 days	
Reaction shipping policy	Free shipping	
Reaction payment policy	Pay on delivery	
Reaction refund policy	Full refund	
Reaction contact info	See website	
Reaction FAQ	See website	
Reaction glossary	See website	
Reaction bibliography	See website	
Reaction index	See website	
Reaction sitemap	See website	
Reaction robots.txt	See website	
Reaction meta tags	See website	
Reaction SEO	See website	
Reaction analytics	See website	
Reaction marketing	See website	
Reaction sales	See website	
Reaction support	See website	
Reaction feedback	See website	
Reaction testimonials	See website	
Reaction press releases	See website	
Reaction news	See website	
Reaction events	See website	
Reaction jobs	See website	
Reaction careers	See website	
Reaction partners	See website	
Reaction affiliates	See website	
Reaction sponsors	See website	
Reaction donors	See website	
Reaction volunteers	See website	
Reaction board of directors	See website	
Reaction board of trustees	See website	
Reaction board of advisors	See website	
Reaction board of directors	See website	
Reaction board of trustees	See website	
Reaction board of advisors	See website	

10

15



18

group consisting of methyl sulfone, vinyl sulfone, phenyl sulfone, 4-fluorophenyl sulfone, benzyl sulfone, tetramethylene sulfone, and butadiene sulfone.

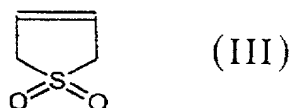
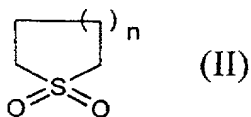
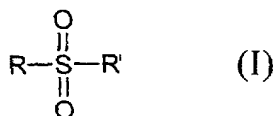
4. The electrolyte for a lithium secondary battery according to claim 1, wherein the amount of the sulfone based organic compound is 0.1 to 10 weight%.

5. A lithium secondary battery comprising:

an electrolyte comprising a non-aqueous organic solvent and a sulfone based organic compound selected from the group consisting of a compound represented as in the following Formulae (I), (II), or (III), and a mixture thereof;

a positive electrode including lithium-transition metal oxides as a positive active material; and

a negative electrode including carbon, carbon composite, lithium metal, or lithium alloy as a negative active material:



where R and R' are independently selected from the group consisting

of a primary, secondary, or tertiary alkyl group, alkenyl group, and aryl group;
and a substituted primary, secondary, or tertiary alkyl group, alkenyl group, and
aryl group, and n is from 0 to 3.